

REMARKS

This is a full and timely response to the final Official Action mailed **November 24, 2003** (Paper No. 21). Reconsideration of the application in light of the following remarks is respectfully requested. Claims 1, 2, 5-7, 10-13, 22, 23 and 25-54 are currently pending for the further consideration.

In the outstanding Office Action, the Examiner indicated the allowance of claims 26-39 and the presence of allowable subject matter in claims 45 and 46. Applicant wishes to thank the Examiner for the allowance of these claims and this indication of further allowable subject matter.

With regard to the prior art, independent claims 1, 22 and 54, along with dependent claims 2, 5, 10 and 25, were rejected under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of U.S. Patent No. 6,131,023 to Matsuura (“Matsuura”), U.S. Patent No. 5,452,473 to Weiland et al. (“Weiland”), U.S. Patent No. 5,469,115 to Peterzell et al. (“Peterzell”) and U.S. Patent No. 6,285,960 to Fung et al. (“Fung”). Independent claims 40 and 54, along with dependent claims 41, 42, 47 and 53 were rejected under § 103(a) over the combined teachings of Matsuura, Weiland, Peterzell, Fung and U.S. Patent No. 6,606,615 to Jennings et al. (“Jennings”). The other dependent claims were rejected on these same combinations of prior art references in further combination with a number of additional references. For at least the following reasons, these rejections are respectfully traversed.

Claim 1 recites:

A method for estimating input power in a cable modem device having a tuner and a modem, the modem having a receiver including an automatic gain control (AGC) circuit with an integrator outputting an accumulated error value, the method comprising the steps of:

inputting a plurality of calibration signals having known frequencies and input power levels into the receiver;

recording calibration data corresponding to each of said plurality of signals, said calibration data including an associated frequency, input power level and accumulated error value for each of said calibration signals;

generating a look-up table comprising an interpolated accumulated error value for each of a desired set of estimated input power levels and input frequencies using said calibration data; and

storing the look-up table in the modem.

Claim 54 recites similar subject matter.

Applicant has disclosed and claimed a method in which a look-up table is generated that includes (1) input frequencies; (2) input power levels and (3) an accumulated error value corresponding to a particular input frequency and input power level. To generate this look-up table, a number of different frequencies and input power levels are tried to generate accumulated error values spread over an operational range. Interpolated accumulated error values are then generated using the measured accumulated error values to provide the full data set for the look-up table with associated input frequency, power level and accumulated error values over the operational range of the modem.

In contrast, the collection of prior art references cited does not teach or suggest a look-up table that comprises a set of associated input frequencies, power levels and accumulated error values.

In the final Office Action, Matsuura is cited simply for “the general structure of a cable modem.” (Paper No. 23, p. 3). Weiland teaches a radiotelephone system, not a cable

modem, in which a linearization table is created. The Office Action attempts to equate the linearization table of Weiland with the claimed look-up table. However, the Weiland linearization table does not include associated frequencies, power levels and accumulated error values as claimed. Rather, Weiland teaches a linearization table that includes only AGC setpoints indexed by frequency. (Weiland, col. 3, lines 38-40 and 61-65).

The final Office Action points out that the Peterzell reference is cited for a teaching of generating an accumulated error value. (Peterzell, col.2, lines 37-49; col. 10, lines 11-21). However, the Peterzell reference teaches that the accumulated error value is used to control an amplifier (18). Peterzell does not teach or suggest that the accumulated error values are stored in a look-up table. In fact, no prior art reference of record teaches or suggests that accumulated error values are stored in a look-up table.

Consequently, no prior art reference of record teaches or suggests that accumulated error values are stored in a look-up table in association with corresponding frequency and input power values. And, no prior art reference of record teaches or suggest that interpolated accumulated error values should be generated and stored in a look-up table in association with corresponding frequency and input power values.

Thus, the cited combination of prior art references fails to teach or suggest all the elements of claims 1 and 54. "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j). Consequently, the rejection of claims 1-13 and 54 based on the cited combination of prior art references should be reconsidered and withdrawn.

Additionally, Claim 1 is a method claim reciting a specific method of operating a cable modem. MPEP § 2116 clearly states that the “materials on which a process is carried out must be accorded weight in determining the patentability of a process. *Ex parte Leonard*, 187 USPQ 122 (Bd. App. 1974).” Thus, the fact that Applicant is claiming a method performed with a cable modem must be given weight in assessing the patentability of the claims.

In the cited prior art, Matsuura teaches a cable modem, while Weiland teaches a completely unrelated radiotelephone. Consequently, it is unclear why one of skill in the art would be motivated to use a linearization table from the Weiland radiotelephone in the Matsuura cable modem. Applicant respectfully submits that the modification of Matsuura using the teachings of Weiland would not have been an obvious combination to one of skill in the art.

Moreover, claim 1 expressly recites storing the look-up table in a modem. No cited piece of prior art teaches storing a look-up table in a modem. For at least these additional reasons, the rejection of claims 1-13 based on the cited combination of prior art references should be reconsidered and withdrawn.

Claim 22 recites:

A cable modem device, comprising:
a tuner that tunes to an input signal;
a modem coupled to the tuner, the modem having a receiver with an automatic gain control (AGC) circuit and a memory; and
a look-up table stored in the memory, the look-up table comprising an interpolated accumulated error value for said AGC circuit for each of a desired set of estimated input power levels and input frequencies;

wherein said look-up table is used to compute an estimated input power to the receiver using a current input frequency and an interpolated accumulated error value that is closest to a current accumulated error value.

As demonstrated above, the cited combination of prior art references fails to teach or suggest a look-up table that includes accumulated error values, particularly interpolated accumulated error values. Additionally, the cited prior art fails to teach or suggest using the look-up table to “compute an estimated input power to the receiver using a current input frequency and an interpolated accumulated error value that is closest to a current accumulated error value.”

As noted above, “[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).” M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j). For at least this reason, the rejection of claims 22, 23 and 25 should be reconsidered and withdrawn.

Additionally, as explained above, the proposed combination of Matsuura and Weiland would not have been obvious to one skilled in the art because the devices taught are completely different and operate very differently. Consequently, for at least these reasons, the rejection of claim 22 and its dependent claims should be reconsidered and withdrawn.

Claims 40 recites:

A method for estimating input power in a cable modem device having a tuner and a modem, the modem having a receiver including an automatic gain control (AGC) circuit with an integrator outputting an accumulated error value, the method comprising the steps of:

inputting a plurality of calibration signals having known frequencies and input power levels into the receiver;

recording calibration data corresponding to each of said plurality of signals, said calibration data including an associated frequency, input power level and accumulated error value for each of said calibration signals;

generating a look-up table comprising an interpolated accumulated error value for each of a desired set of estimated input power levels and input frequencies using said calibration data; and

storing the look-up table in the modem.

wherein generating said look-up table further comprises identifying a maximum value and a minimum value for frequency and input power level, wherein said maximum and minimum values are used to scale data in said look-up table.

Claim 51 recites similar subject matter.

As demonstrated above, the cited prior art fails to teach or suggest generating a look-up table comprising accumulated error values, particularly interpolated accumulated error values. Moreover, no prior art reference teaches storing a look-up table in a modem.

Additionally, claims 40 and 51 recite using maximum and minimum values to scale the data in the look-up table. According to the Office Action, Jennings teaches selecting the scale of a graph based on maximum and minimum values. Applicant concedes that selecting the scale of a graph based on maximum and minimum values is known.

However, Jennings does not teach or suggest that “maximum and minimum values [for frequency and input power level] are used to scale data in a look-up table” comprising an interpolated accumulated error value corresponding to input power levels and frequencies. Therefore, even if there were some motivation to combine the disparate references cited, including Jennings, the combination would still fail to teach or suggest the recited features of claim 40. Therefore, the rejection of claims 40-53 should be reconsidered and withdrawn.

For the foregoing reasons, the present application is thought to be clearly in condition for allowance. Accordingly, favorable reconsideration of the application in light of these remarks is courteously solicited. If any fees are owed in connection with this paper which have not been elsewhere authorized, authorization is hereby given to charge those fees to Deposit Account 18-0013 in the name of Rader, Fishman & Grauer PLLC. If the Examiner has any comments or suggestions which could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Steven L. Nichols', written over a horizontal line.

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DATE: January 31, 2004

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